

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-8 and 10-20 are presently active in this case. The present Amendment amends Claims 1-4, 12-13 and 17, and adds new Claims 18-20 without introducing any new matter, and cancels dependent Claim 9 without prejudice or disclaimer.

The outstanding Office Action, Claims 1-16 have been rejected under 35 U.S.C. § 103(a) over the reference Zhou et al. (U.S. Patent No. 7,287,855, hereinafter “Zhou ‘855”) in view of Garcia et al. (U.S. Patent No. 6,927,888, hereinafter “Garcia”). Claim 17 has been rejected under 35 U.S.C. § 103(a) over the reference Zhou ‘855 and Garcia, in further view of Easley et al. (U.S. Patent No. 5,603,710, hereinafter “Easley”).

First, Applicant respectfully submits that the reference Zhou ‘855 was first filed in May 26, 2004, which is later than the filing of Applicant’s provisional application on August 6, 2003, and therefore Zhou ‘855 is not prior art against Applicant’s invention. In the spirit of moving the prosecution forward, Applicant notes that Zhou ‘855 is a continuation-in-part of a similar disclosure that was filed on September 30, 2002, that issued as U.S. Patent No. 7,286,227. Accordingly, in the present response, we will consider the disclosure of the earlier filed application of Zhou et al. (U.S. Patent No. 7,286,227, hereinafter “Zhou ‘227”). However, Applicant respectfully requests that the reference Zhou ‘227 be used in the next Office Action.

In the present Amendment, Applicant’s independent Claim 1 is amended to recite “calculating a plurality of depolarization parameters, except for the depolarization index, from the Mueller matrix as a contrast mechanism for identifying features of the illuminated object,” and to correct formal issues. In addition, independent Claims 13 and 17 have been amended to recite an analogous feature in the context of methods of retinal polarimetry.

These features also find non-limiting support in Applicant's disclosure as originally filed, for example in the specification as originally filed, starting at p. 18, l. 24. No new matter has been added. In addition, dependent Claims 2-4 and 12 are amended to correct a minor formality.

Moreover, new dependent Claims 18-20 have been added. New Claims 18-19 depend upon independent Claims 1 or 17, respectively, and recite features related to the generation of polarization images. These features find non-limiting support in Applicant's disclosure as originally filed, for example in the specification starting at page 33, line 16. New dependent Claim 20 recites that the polarimeter is a retinal polarimeter. These features are also supported in a non-limiting description by the specification as originally filed, for example at page 5, lines 15-19. No new matter has been added.

In response to the rejection of Claim 1 under 35 U.S.C. § 103(a), Applicant respectfully requests reconsideration of this rejection and traverse the rejection, as discussed next.

Briefly summarizing, Applicant's independent Claim 1 is directed to a method for identifying features in an object. The method includes positioning and focusing polarimeter onto the object; illuminating the object with a series of at least 16 polarization states; analyzing a plurality of reflected images corresponding to said at least 16 polarization states; obtaining a Mueller matrix from the plurality of reflected images; and ***calculating a plurality of depolarization parameters, except for the depolarization index, from the Mueller matrix as a contrast mechanism*** for identifying features of the illuminated object.

As explained in Applicants' specification at paragraph [0038] of the publication in a non-limiting example, the use of the depolarization alone can be misleading as to the actual amount of depolarization because it obscures the details of the depolarization contributions, whereas the combination of the average and the weighted average degree of polarization, as

required by Applicants' independent Claim 1, can illuminate the contributions to the index, and can provide for a more accurate picture of the depolarization than the index alone can do. Please note that this description of the features of Applicants' independent Claim 1 is provided for explanatory purposes only, and shall not be used to limit the scope of the claims in any fashion.

Turning now to the applied references, Zhou '227 is directed to a method of performing scanning laser polarimetry that measures in vivo retinal nerve fiber layer retardance in a single measurement, to remove effects of anterior segment birefringence. (Zhou '227, Abstract, col. 1, ll. 19-23.) In the background of his description, Zhou '227 describes a Mueller matrix polarimetry technique for examining polarization properties of polarimetry system. (Zhou '227, col. 2, l. 11-49.) However, Zhou '227 fails to teach a step of calculating a plurality of depolarization parameters, except for the depolarization index, from the Mueller matrix, as required by Applicant's independent Claim 1. The pending Office Action also confirms that the continuation-in-part application to Zhou '855 fails to teach anything related to the calculation of any other depolarization parameter. (Office Action, p. 3, l. 1-2.)

However, the Office Action asserts that a similar feature is found in the reference Garcia, and also assumes that the combination of the continuation-in-part application to Zhou '855 and Garcia is proper. (Office Action, p. 3, ll. 3-8.) However, Applicants respectfully submit that Garcia merely explains that with his scanning microscope 10 having a polarimeter, scanned images can be captured, and spatially-resolved Mueller matrices can be calculated. (Garcia, col. 9, ll. 35-44, ll. 54-56, col. 15, ll. 39-51.) Unrelated to the information of the Muller matrices, Garcia explains that the average degrees of polarization were 0.87 and 0.18, the latter being highly depolarizing. (Garcia, col. 15, ll. 39-51.) In other words, Garcia explains that after calculating the spatially resolved Mueller matrix of a

sample, images for incident light with different states of polarization were reconstructed.

(Garcia, Abstract, ll. 7-9.) The portions of Garcia that the Examiner used to reject the features regarding the depolarization parameter, read as follows:

When system 10 is operated in microscope mode, spatially resolved Mueller matrices were calculated for two different samples: a U.S.A.F. resolution chart (primarily specular reflections) and a grey scale image on white paper (primarily diffuse reflections, not shown here). FIG. 2a shows the spatially resolved elements of the first row for the Mueller matrix corresponding to the USAF target. The averaged degrees of polarization were 0.87 (nearly specular) and 0.18 (highly depolarizing) for this target and the diffuse reflection respectively. In the ophthalmoscope mode we applied the procedure to retinal images recorded in a living human eye. In FIG. 3 we show the first row of the Mueller matrix for a retinal fundus region (with blood vessels).

(Garcia, col. 15, ll. 39-51.) It is unclear from these passages in Garcia how the average degree of polarization was calculated. It is possible that the polarization was simply calculated by the settings of the polarimeter and the relative position of quarter plates QWP1 and QWP2. (Garcia, col. 10, ll. 9-67.)

In contrast, Applicant's independent Claim 1 requires calculating a plurality of depolarization parameters, except for the depolarization index, from the Mueller matrix. Just like the continuation-in-part application to Zhou '855, this feature is not taught by the cited passages of Garcia. In addition, these passages of Garcia fail to show that the features of Applicant's Claim 1 are inherent to his disclosure, because to reject a claim based on inherency "the alleged inherent characteristic [has to] *necessarily* [flow] from the teachings of the applied references." See M.P.E.P. § 2112 (emphasis in original) (citation omitted). See also same section stating that "[t]he fact that a certain result or characteristic *may* occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." (emphasis in original). Moreover, neither Zhou '227 nor Garcia show how to use the average or weighted averaged degree of polarization to analyze the elements that contribute to the depolarization index. In light of the above discussion, Applicant

respectfully traverses the rejection of independent Claim 1, and requests reconsideration thereof.

Moreover, Applicant respectfully traverses the rejection of Applicant's dependent Claim 5. This claim requires a step of calculating both a minimum and a maximum degrees of polarization; and calculating a difference between said minimum and a maximum degrees of polarization. Such feature is not taught at column 11 of the reference Zhou '227. In these passages, Zhou '227 merely explains a calculation of minima and maxima related to the orientation axes in a radial geometry. (Zhou '227, col. 11, ll. 17-63.) Accordingly, Applicant also respectfully traverses, and request reconsideration of the rejection of dependent Claim 5.

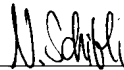
Independent Claims 13 and 17 recite features that are analogous to the features argued above with respect to independent Claim 1. Moreover, Claims 13 and 17 have been amended in a manner analogous to the amendment to Claim 1. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicant respectfully submits that the rejections of Claims 13 and 17 and all associated dependent claims are also believed to be overcome in view of the arguments regarding independent Claim 1.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-8 and 10-20 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

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